National Aeronautics and Space Administration

technology opportunity

Preservation of Liquid Biological Samples

Simple preservative technology that requires no refrigeration

The National Aeronautics and Space Administration (NASA) seeks interested parties for the commercial application and manufacturing for the preservation of liquid biological samples technology. This technology is a method for adding a patented preservative to a commercial off-the-shelf collection kit. This proprietary process coats the interior of the storage vile with the patented preservative chemical cocktail. For example, this additive in conjunction with centrifuging, allows saliva samples to be stored at room temperature for up to six months. The preservative technology can be used with different biological liquid samples and in different clinical applications that require long-term storage of biological samples at ambient temperatures.

Benefits

- **Ambient Storage:** The preservative technology adapts to commercial off-the-shelf bio-sampling units and allows for storage at room temperature
- **Safe & Non-toxic:** The chemicals are non-toxic, edible compounds
- **Long-Term Storage:** Extends the shelf life of some liquid biological sample up to six months
- **Flexible:** Can be dispensed in solid, liquid and coated forms.
- **Fully Contained:** A closed-system that is ready for use in a physicians office

Technology Details

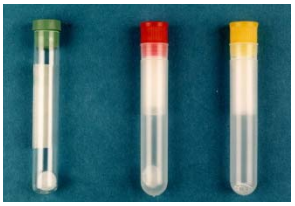
Applications

- Diagnostic Medicine
- Therapeutics
- Immune Disorders
- Drug, Alcohol, and DNA Testing

Ambient storage technology for biological samples was developed to support pharmacology research conducted on the Shuttle Mir experiments. The technology has a broad application for clinical diagnostic medicine on Earth.

How it Works

This technology is a chemical cocktail intended for preservation of biological samples like blood and saliva. The present invention includes combining the liquid biological sample with the preservative comprising of sodium benzoate in an amount of at least 0.15% of the sample (weight/volume); and citric acid in an amount of at least 0.025% of the sample (weight/volume). The preservative can be dispensed in different platforms such as coated sample collection tubes like vaccutainers and Sarstedt saliva collection devices, coated preservative discs, compressed tablets or capsules, or in metered dispensers such as dropper bottles and syringes that can be used for preservation of larger volume samples.



Applications and Status

This preservative method can be used with a variety of liquid biological sample including but not limited to saliva, tears, urine, blood, serum, plasma, sweat, feces, mucous, breast milk, bone marrow, and spino-cerebral fluid. The preservative is useful for routine and special clinical chemistry testing in adverse and remote site medical facilities, rural and disaster zone clinical operations, home healthcare diagnostics, pediatric and geriatric medicine and sports medicine operations. Therapeutic drug monitoring, hormone and biomarker research and therapeutics, AIDS diagnostic kits, and other immune deficiency biomarker assessments are other potential applications for this preservative.

A new clinical concept for the prototype has been identified and is awaiting commercial partnership for manufacturing. A third party study was conducted using the patented preservative in blood samples. They were tested at the same time for 23 different assays in stability studies. During the 11 day study, the blood samples were successfully preserved.

Commercial Opportunity

- X U.S. Patent(s)
- ☐ Patent Pending
- ☐ Copyrighted
- X Available to License
- ☐ Available for No-Cost Transfer
- X Seeking Industry Partner for Manufacturing

Patents

The invention, “Preservation of Liquid Biological Samples,” is protected under U. S. patent number 6,133,036 issued on October 2000, and patent number 6,716,392 issued on April 2004.

Licensing and Partnering Opportunities

This technology is part of NASA’s Innovative Partnerships Office (IPO), which seeks to transfer technology into and out of NASA to benefit the space program and U.S. industry. NASA invites companies to consider licensing ***MSC-22616-2, -3***

For More Information

If you would like more information or want to pursue transfer of this technology please contact us at:

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